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मानक

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IS 6018 (1993): Platinum, platinum rhodium catalyst gauges  
[MTD 10: Precious Metals]



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भारतीय मानक

प्लेटिनम, प्लेटिनम-रोडियम उत्प्रेरक जाली — विशिष्ट

( पहला पुनरीक्षण )

*Indian Standard*

PLATINUM, PLATINUM - RHODIUM CATALYST  
GAUZES — SPECIFICATION

( *First Revision* )

UDC 54-44 : 669'231' 235-427'5

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BUREAU OF INDIAN STANDARDS  
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NEW DELHI 110002

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Price Group 1

## FOREWORD

**This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Precious Metals Sectional Committee had been approved by the Metallurgical Engineering Division Council.**

**Platinum, platinum-rhodium gauzes are used as catalyst for oxidation of ammonia for the production of nitric acid. Rigorous control is needed for fabricating the gauzes especially with regard to alloying, rolling, wire drawing and weaving, in order to ensure maximum efficiency and reasonable life of the gauzes.**

**IS 6018 'Specification for platinum, platinum-rhodium catalyst gauzes was first published in 1971. It specifies the requirements for the weight, mesh size, weave pattern and finish of these gauzes. This standard has been revised to include the tolerances for rhodium content.**

**For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values ( *revised* )'.**

# Indian Standard

## PLATINUM, PLATINUM - RHODIUM CATALYST GAUZES — SPECIFICATION

( First Revision )

### 1 SCOPE

This standard specifies the requirements such as, purity, dimensions, mass, mesh size, weave pattern and finish for four types of platinum and platinum-rhodium gauzes used as catalyst.

### 2 REFERENCE

The Indian Standard 2270 : 1965 'Methods for assaying platinum and platinum alloys' is necessary adjunct to this standard.

### 3 REQUIREMENTS

3.1 The gauzes shall satisfy the requirements as given in Table 1.

**Table 1 Requirements for Platinum,  
Platinum-Rhodium Gauzes**

Type	Platinum ( Percent )	Rhodium ( Percent )	Wire Dia ( mm )	Mesh ( cm <sup>2</sup> )	Mass ( g/m <sup>2</sup> )
A	99.9, <i>Min</i>	—	0.06	1.024	431
B	95	5	0.06	1.024	417
C	90	10	0.06	1.024	403
D	90	10	0.076	1.024	657

### 3.2 Tolerance

#### 3.2.1 Platinum Content

The total platinum-rhodium content shall be 99.9 percent minimum.

3.2.1.1 Tolerance on platinum content for type B, C and D shall  $\pm 0.3$  percent ( *see Note* ).

NOTE — For the purpose of clarity, platinum content in 95 percent platinum/5 percent rhodium alloy gauzes shall be 94.7 to 95.3 percent and for 90 percent platinum/10 percent rhodium alloy gauzes, platinum content shall be 89.7 to 90.3 percent.

#### 3.2.1.2 Rhodium Content

Tolerance on rhodium content for Types B, C and D shall be  $\pm 0.3$  percent ( *see Note* ).

NOTE — For the purpose of clarity, rhodium content in 95 percent platinum/5 percent rhodium alloy gauzes shall be 4.7 to 5.3 percent and for 90 percent platinum/10 rhodium alloy gauzes, the rhodium content shall be 9.7 to 10.3 percent.

### 3.2.2 Impurity Limits

The impurity limits in platinum, platinum-rhodium gauzes shall be as follows:

Element	Percent, by mass
	<i>Max</i>
Cu	0.04
Ni	0.02
Mn	0.02
Cr	0.02
Ca	0.005
Mg	0.005
Fe	0.04 ( or 0.05, if Ni, Mn or Cr is absent )
Au	0.005
Pd	0.05
Total impurities	0.1

### 3.2.3 Wire Diameter

Tolerance on diameter for wire shall be  
 $+ 0.003$   
 $- 0.001$  mm.

### 3.2.4 Mass

The tolerance on mass of gauze shall be  
 $+ 10$   
 $- 5$  percent.

## 4 FINISH AND WORKMANSHIP

### 4.1 Weave Pattern

The pattern of weave adopted for the fabrication of the gauzes may be either linen weave or fish-bone weave, as required by the purchaser.

### 4.2 Finish

The gauzes after fabrication shall be annealed to relieve any work-hardening. The finished gauzes should be flanged at the edges to a width of 5 mm and properly welded uniformly. However, for smaller sizes, less than half a meter diameter for round and half a meter width

across flat for hexagonal type gauze, the border may be hammer-welded.

**4.3** The gauzes should preferably be seamless.

## **5 TESTING**

Platinum and rhodium contents for Types B, C and D shall be determined in accordance with the method given in IS 2270 : 1965. The impurities for Types B, C and D shall be determined by the method as agreed to between the supplier and the purchaser.

## **6 MARKING**

**6.1** Each gauze shall have an identification mark on a small platinum strip welded to the gauze at the border indicating:

- a) Manufacturer's name or trade-mark;
- B) Year and month of manufacture; and
- C) Mass in grams of the finished gauze expressed up to first place of decimal.

**6.2** Each gauze or the container may also be marked with Standard Mark.

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